

Abstract

A vacuum packaged electromechanical micromirror array comprises a 1st packaging substrate, a 2nd packaging substrate, a device substrate with a 1st surface and a 2nd surface, control circuitry on said 1st surface, and micromirrors on said 2nd surface. The device substrate resides on the 1st packaging substrate with electrical connections between them. The electromechanical micromirror array is sealed in a vacuum package formed by the packaging substrates. The vacuum packaged micromirror array may be used as a spatial light modulator (SLM). Methods of fabricating the vacuum packaged array are disclosed. Such methods generally involve providing a device substrate with a 1st surface and a 2nd surface, fabricating control circuitry on the 1st surface, fabricating micromirrors on the 2nd surface, providing a 1st packaging substrate, mounting the device substrate on the 1st packaging substrate by flip-chip assembly, providing a 2nd packaging substrate, and sealing the packaging substrates by glass frit sealing.